

Jenbacher type 6



50
over
years of power

Jenbacher gas engines

cutting-edge technology

Continuously refined based on our extensive experience, the Jenbacher type 6 engines are reliable, advanced products serving the 1.5 to 4 MW power range. Its 1,500 rpm engine speed results in a high power density and low installation costs. The type 6 pre-combustion chamber achieves maximum efficiency with low emissions. Proven design and optimized components enable a service life of 60,000 operating hours before the first major overhaul.

reference installations

model, plant

key technical data

description

J612 GS
Beretta, industry;
Gardone, Italy

Fuel Natural gas
Engine type 1 x JMS 612 GS-N.L
Electrical output 1,457 kW
Thermal output 5,241 MBTU/hr
Commissioning December 1998

The generated electricity covers the entire electricity requirement of the Beretta factory, while the heat is used for the production process. By using our cogeneration system, Beretta was able to reduce the energy supply costs for the factory by 30%.



J616 GS
Mussafah Industrial
City, residential area;
Abu Dhabi, UAE

Fuel Natural gas
Engine type 3 x JGS 616 GS-N.L
Electrical output 6,018 kW
Commissioning June 2003

Three Jenbacher generator sets supply power generation for continuous operation of compressor chillers to provide chilled water for cooling to a residential area that incorporates apartments, shopping centers, mosques, a police station, and a cinema complex.



J620 GS
Wijnen Paprika;
Egchel,
The Netherlands

Fuel Natural gas
Engine type 3 x JMS 620 GS-N.LC
Electrical output 9,123 kW
Thermal output 36,791 MBTU/hr
Commissioning June 2006 (1st, 2nd engine),
March 2007 (3rd engine)

The Jenbacher cogeneration systems provide power, heat and CO₂ to increase the Wijnen greenhouse paprika production. The CO₂ produced from the exhaust gas of the engines is cleaned and used for fertilization in the greenhouse.



J620 GS
Biomass power plant;
Güssing, Austria

Fuel Wood gas
Engine type 1 x JMS 620 GS-S.L
Electrical output 1,964 kW
Thermal output 8,504 MBTU/hr
(district heating 158°F/194°F)
Commissioning April 2002

The wood gas produced and cleaned in a fluidized bed/steam reactor is converted into heat and power in the Jenbacher cogeneration plant and forms an important component in an innovative project aimed at meeting 100% of the region's energy needs from renewable sources.



technical features

feature	description	advantages
Four-valve cylinder head	Centrally located purged pre-combustion chamber, developed using advanced calculation and simulation methods (CFD)	<ul style="list-style-type: none"> - Minimized charge-exchange losses - Highly efficient and stable combustion - Optimal ignition conditions
Heat recovery	Flexible arrangement of heat exchanger, two stage oil plate heat exchanger on demand	<ul style="list-style-type: none"> - Maximum thermal efficiency, even at high and fluctuating return temperatures
Air/fuel mixture charging	Fuel gas and combustion air are mixed at low pressure before entering the turbocharger	<ul style="list-style-type: none"> - Main gas supply with low gas pressure - Mixture homogenized in the turbocharger
Pre-combustion chamber	The ignition energy of the spark plug is amplified in the pre-combustion chamber	<ul style="list-style-type: none"> - Highest efficiency - Lowest NOx emission values - Stable and reliable combustion
TecJet™ gas dosing valve	Electronically controlled gas dosing valve with high degree of control accuracy (for natural gas)	<ul style="list-style-type: none"> - Very quick response time - Rapid adjustment of air/gas ratio - Large adjustable calorific value range
Miller valve timing	Camshaft with special inlet cam profile (for natural gas)	<ul style="list-style-type: none"> - Reduced maximum compression temperature and increased safety margin to knocking limits - High efficiency through optimized ignition timing

technical data

Configuration	V 60°			
Bore (inch)	7.48			
Stroke (inch)	8.66			
Displacement/cylinder (cu.in)	380.7			
Speed (rpm)	1,500 with gearbox (60 Hz)			
Mean piston speed (in/s)	433			
Scope of supply	Generator set, cogeneration system, containerized package			
Applicable gas types	Natural gas, flare gas, biogas, landfill gas, sewage gas. Special gases (e.g., coal mine gas, coke gas, wood gas, pyrolysis gas)			
Engine type	J612 GS	J616 GS	J620 GS	J624 GS
No. of cylinders	12	16	20	24
Total displacement (cu.in)	4,568	6,090	7,613	9,135

Dimensions l x w x h (inch)

Containerized package	J612 - J620	5,900 x 2,360 x 2,880
Generator set	J612 GS	300 x 90 x 110
	J616 GS	330 x 90 x 110
	J620 GS	350 x 90 x 110
	J624 GS	480 x 90 x 120
Cogeneration system	J612 GS	300 x 90 x 110
	J616 GS	330 x 90 x 110
	J620 GS	350 x 90 x 110
	J624 GS	480 x 90 x 120

Weights empty (lbs)

	J612 GS	J616 GS	J620 GS	J624 GS
Generator set	45,420	57,320	67,680	91,270
Cogeneration system	46,520	58,420	69,000	92,590

outputs and efficiencies

Natural gas

1,500 rpm/60 Hz + gearbox

1,500 rpm/50 Hz

NOx <	Type	Pel (kW) ²	η_{el} (%)	Pth (MBTU/hr)	η_{th} (%)	η_{tot} (%)	Pel (kW) ²	η_{el} (%)	Pth (MBTU/hr)	η_{th} (%)	η_{tot} (%)
1.1 g/bhp.hr	612	1,984	44.7	6,375	42.0	86.7	2,004	45.1	6,312	41.6	86.7
	616	2,652	45.1	8,405	41.9	86.9	2,679	45.5	8,322	41.4	87.0
	620	3,319	45.1	10,466	41.7	86.8	3,352	45.6	10,362	41.3	86.8
	624	3,989	45.2	12,529	41.6	86.8	4,029	45.6	12,403	41.2	86.8
0.6 g/bhp.hr	612	1,984	43.1	6,660	42.4	85.5	2,004	43.5	6,592	42.0	85.5
	616	2,652	43.2	8,874	42.4	85.6	2,679	43.6	8,786	41.9	85.6
	620	3,319	43.2	11,068	42.3	85.5	3,352	43.7	10,956	41.8	85.5
	624	3,989	43.6	13,280	42.5	86.1	4,029	44.0	13,146	42.1	86.1

Biogas

1,500 rpm/60 Hz + gearbox

1,500 rpm/50 Hz

NOx <	Type	Pel (kW) ²	η_{el} (%)	Pth (MBTU/hr)	η_{th} (%)	η_{tot} (%)	Pel (kW) ²	η_{el} (%)	Pth (MBTU/hr)	η_{th} (%)	η_{tot} (%)
1.1 g/bhp.hr	612	1,800	42.4	6,159	42.5	84.8	1,818	42.8	6,097	42.1	84.8
	616	2,408	42.5	8,220	42.5	85.0	2,433	42.9	8,138	42.1	85.0
	620	3,013	42.6	10,278	42.5	85.1	3,044	43.0	10,175	42.1	85.1
0.6 g/bhp.hr	612	1,800	41.9	6,221	42.4	84.3	1,818	42.3	6,159	42.0	84.3
	616	2,408	42.0	8,289	42.4	84.4	2,433	42.4	8,206	42.0	84.4
	620	3,013	42.1	10,367	42.4	84.5	3,044	42.5	10,263	42.0	84.5

²Total heat output with a tolerance of +/- 8%, exhaust gas outlet temperature 248°F, for biogas exhaust gas outlet temperature 356°F
All data according to full load and subject to technical development and modification.